

RECEIVED
CENTRAL FAX CENTER

OCT 18 2006

REMARKS/ARGUMENTS

The outstanding Office Action rejects claims 3, 4, 6-16, 21-23, and 25-28 on various grounds and over various applied references.

In response to the Office Action dated August 9, 2006, the following amendments to the claims are made. Claims 27 and 28 are cancelled herein. Claims 7 and 21 are amended. Claims 27-28 are cancelled. The various grounds of rejection are discussed below. Claims 3, 4, 6-16, 21-23 and 25-26 are now pending in this application.

Rejection Under 35 U.S.C. § 112

The rejection of Claim 28 under 35 U.S.C. § 112, first paragraph has been obviated by the cancellation of Claim 28. Accordingly, Applicants request that this rejection be withdrawn.

Rejection Under 35 U.S.C. § 102

Claims 27 and 28 have been rejected as anticipated by the U.S. Patent to *Mayer et al* (USPN 6,946,065 hereinafter "*Mayer*") under 35 U.S.C. § 102(e). Because Claims 27 and 28 are now cancelled, further discussion of these claims and the attendant rejection are a moot issue. Accordingly, the Applicants respectfully request that this ground of rejection be withdrawn.

Rejections Under 35 U.S.C. § 103

Claims 3, 4, 6, 7, 8, 9, 16, 21-23 and 25-28 stand rejected under 35 U. S. C. §§ 103(a) as being unpatentable over U.S. Pat. Publ. *Bonkabeta et al* (2004/0188260 hereinafter "*Bonkabeta*") in view of *Mayer*.

Because Claims 27 and 28 are now cancelled, further discussion of these claims with respect to this ground of rejection are a moot point. Accordingly, the Applicants respectfully request that this ground of rejection be withdrawn as to Claims 27 and 28.

The claims have been amended. Claims 7 and 21 now being the core base claims.

Claim 7 is rejected as being made obvious by *Bonkabeta* in view of *Mayer*.

Claim 7 is amended to capture the further limitation of an added CMP process which enabled the precision planarization of even large open field areas over layer trenches. For example, Claim 7 recites "chemical mechanical polishing (CMP) of the metal layer to remove top layers of the metal layer forming a polished metal layer in the opening". This step erodes the large bulk metal layer and then is followed by "removing the excess portions of the polished metal layer by performing sequentially electropolishing followed by electroplating". This combination of processes is not taught or suggested in the cited combination of references.

As to rejected dependent Claims 3, 4, 6, 8, 9, 16 and 26 (which all depend from claim 7) it is respectfully suggested that these claims are allowable for at least the reasons explained above with respect to Claim 7. Accordingly, Claims 3, 4, 6-9, 16 and 26 are all believed allowable over the cited art and the Applicants request that the pending ground of rejection be withdrawn.

Claim 21 is rejected as being made obvious by *Bonkabeta* in view of *Mayer*.

Claim 21 is also amended to capture the further limitation of an added CMP process which enabled the precision planarization of even large open field areas over layer trenches. For example, Claim 21 recites "providing a semiconductor substrate having an opening ... [with] ... a field area greater than at least 3000 angstrom" and "chemical mechanical polishing (CMP) of the metal layer to remove top layers of the metal layer forming a polished metal layer in the opening". This is followed by alternating electroplating and electropolishing steps. This combination of processes is not taught or suggested in the cited combination of references.

As to rejected dependent Claims 22, 23, 25, and 26 (which all depend from claim 21), it is respectfully suggested that these claims are allowable for at least the reasons explained above with respect to Claim 7. Accordingly, Claims 21-23 and 25-26 are all believed allowable over the cited art and the Applicants request that the pending ground of rejection be withdrawn.

Notes concerning Claims 25 & 26

On Page 11 of the Office Action it is stated that the *Bonkabeta* teaches using organic additives bis-3-sulfopropyl disulfide at paragraph [0034]. This is simply untrue. At most, an organic sulfide is taught, which is not the claimed disulfide compound. The other example being a sulfonate (bis (3-sulfopropyl)-disodium-sulfonate). It is important to note that the claimed

disulfides are structurally different from the prior art sulfonates and not equivalent to each other. Such is well known to those having ordinary skill. For example, one is referenced to Class 562 of USPTO listing of organic compounds (also of value are series 532-570 of the same USPTO listing) which clearly illustrates this point.

Accordingly, the Applicants point out that the cited art does not teach or suggest the invention as claimed. Accordingly, Claims 25-26 are further believed allowable over the cited art and the Applicants request that the pending ground of rejection be withdrawn.

Thus, the Applicants respectfully submit that none of the cited art teaches or suggests the combination of CMP and combined electroless polishing/plating to obtain a highly desirable surface profile in accordance with the principles of the invention. And thus, as amended, the cited combination of references fails to teach all claim elements of the claimed invention and therefore does not establish a *prima facie* case for obviousness for the amended claims. Therefore, the Applicants respectfully request that these grounds of rejection be withdrawn as to the pending claims.

Conclusion:

In view of the foregoing amendments and remarks, it is respectfully submitted that the claimed invention as presently presented is patentable over the art of record and that this case is now in condition for allowance.

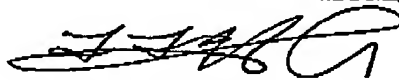
Accordingly, the Applicants request withdrawal of all pending rejections and request reconsideration of the pending application and prompt passage to issuance. As an aside, the Applicants clarify that any lack of response to any of the issues raised by the Examiner is not an admission by the Applicants as to the accuracy of the Examiner's assertions with respect to such issues. Accordingly, Applicants specifically reserve the right to respond to such issues at a later time during the prosecution of the present application, should such a need arise.

As always, the Examiner is cordially invited to telephone the Applicants' representative to discuss any matters pertaining to this case. Should the Examiner wish to contact the undersigned for any reason, the telephone number set out below can be used.

Additionally, if any fees are due in connection with the filing of this Amendment, the Commissioner is authorized to deduct such fees from Deposit Account No. 12-2252 (Order No. 03-1498).

Respectfully submitted,

BEYER WEAVER & THOMAS, LLP



Francis T. Kalinski II
Registration No. 44,177

P.O. Box 70250
Oakland, CA 94612-0250
Telephone: (650) 961-8300